## REMARKS

The present application has claims 1-14 pending. Claims 7, 8, 11 and 12 have been withdrawn from consideration, but not yet canceled. Applicants have herein amended claim 1.

Support for the amendment of claim 1 may be found in the originally-filed claims, in the title of the invention ("catalyst coated membrane with protective film layer") and in the specification on page 1, line 28 to page 2, line 5. Further support for anode and cathode catalyst layers may be found in the specification on page 3, lines 1-3, and in Example 1, page 13, lines 10-15.

In the April 21, 2009 Office Action, the Examiner again rejects claims 1-3, 5-6 and 13 under 35 USC §102(b) as allegedly anticipated by Steck (EP 0586461 B1). Additionally, the Examiner rejects claims 4, 9, 10 and 14 under 35 USC §103(a) as unpatentable over Steck in combination with secondary reference Fukuoka, *et al.* (JP 10-154521).

Applicants disagree with the Examiner's position. Steck does not disclose the subject invention as set forth in amended claim 1 above -- that is, a catalyst-coated membrane, with a protective film layer, that is distinct and can be isolated from gas

distribution layers (GDLs) and can exist separately outside a membrane-electrode-assembly (MEA).

As indicated in prior responses, Steck discloses a different type of MEA technology -- one that is based on the use of gas diffusion electrodes (GDE), sometimes called catalyst-coated backings or catalyst-coated GDLs. These catalyst-coated backings or GDEs are laminated to uncoated ionomer membranes to form five-layer MEAs. See, for example, the discussion in the specification on page 2, lines 17-20. In contrast, the present invention is directed towards catalyst-coated membranes (CCMs) in which the membrane is coated with catalyst layers on both sides. The CCMs of the present invention may also form five-layer MEAs by combining them with uncoated GDLs.

The Examiner seems to be taking the position that once the MEA is formed, Steck has a CCM in accordance with the present invention. This is not so, especially when the above claim amendments are taken in account. Steck uses GDEs, unlike the catalyst layers of the present invention. The electrodes of Steck are formed by applying catalytic material to "porous electrically conductive sheet material such as carbon fiber paper" - see Steck, page 2, lines16-19. In contrast, the electrodes of the present invention are formed by coating the ionomer membrane with catalyst inks - see for example, the specification, page 1, line 28 to page 2, line 5, and the examples. As stated in the specification, uncoated GDLs, which usually are carbon-based substrates such as carbon fiber paper (or the "porous electrically conductive sheet material" of Steck), may later be

placed against the catalyst layers of the inventive CCM of claim 1 in order to form MEAs (see page 2, lines 7-17).

Accordingly, in Steck, an isolated CCM does not exist - separate and distinct from the MEA. In Steck, the ionomer membrane is in contact with catalyst when the GDEs are combined with the uncoated membrane. Hence, Steck fails to disclose a CCM having catalyst layers but not having carbon-based substrates, such as carbon fiber paper.

These distinctions with Steck are emphasized by the present claim amendments. First of all, Steck does not disclose an isolated catalyst-coated membrane as now required by the present claims. Steck only discloses an ionomer membrane in contact with catalyst in the form of a MEA.

Additionally, Steck does not disclose a CCM consisting essentially of an anode catalyst layer, an ionomer membrane, and a cathode catalyst layer, as now required by the amended claims. As stated above, the catalyst layers in Steck are part of his GDEs, which comprise catalysts and carbon-based substrates. See Steck, pages 2-4, where it is stated that that electrodes 18 and 20 (in Figures 1 to 4) are "carbon fiber paper based electrodes" (Steck, page 4, line 46) and are "formed of porous electrically conductive sheet material such as carbon fiber paper" (Steck, page 2, line 16-17).

The catalyst layers of the present invention are applied to the ionomer membrane and do not have porous electrically conductive sheet materials present. The catalyst layers of the CCMs of the present invention comprise electro-catalysts (see, page 3, line 1, of the specification) and are manufactured by coating ionomer membranes using catalyst inks according to US 6,309,772 (see, Example 1 in the specification). In all the examples presented in the present application, CCMs are used in which catalyst inks are deposited directly on the membrane. The inventive CCMs do not contain carbon based substrates.

In light of the claim amendments and the remarks presented above, Applicants maintain that claim 1 is novel over, and not anticipated by, the disclosure of Steck. Claims 2-6 and 13, which dependent from claim 1, are patentable over Steck for the same reasons as outlined above for claim 1. Moreover, the MEAs of the present invention, as set forth in claim 9, are made from the CCMs discussed above (as made explicit by the dependency of claim 9 from independent claim 1). Accordingly, claim 9 and its dependent claims 10 and 14 are also patentable over Steck for the same reasons outlined above for claim 1.

The improved CCMs of the present invention avoid the disadvantages of the prior art (see for example, page 6, lines 21-29), and possess the ability to withstand frequent assembly and disassembly processes without damage (see page 14, lines 15-16), exhibit

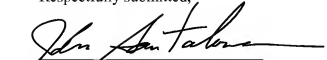
no leakage (page 6, lines 14-15), and have excellent long term performance (see Example 2, page 14, lines 28-29, and Example 3, page 15, line 23).

In light of the amendments and remarks above, Applicants request reconsideration and withdrawal of the rejections under 35 U.S.C. §§102(b) and 103(a) set forth in the April 21, 2009 Office Action and respectfully solicit allowance of the present application.

No fee is deemed due for this amendment, other than the fee for the requested three-month extension of time. If any additional fees are due, or an overpayment has been made, please charge, or credit, our Deposit Account No. 11-0171 for such sum.

If the Examiner has any questions regarding the present application, the Examiner is cordially invited to contact Applicants' attorney at the telephone number provided below.

Respectfully submitted,



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